



Depleted Uranium (DU) Medical Management


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Learning Objectives

- 
- A large blue arrow pointing to the right, with a red spade symbol at its tip.
- Define appropriate DU medical management and review the service-specific DU programs
 - ♠ Discuss Deployment Health Clinical Center's role in DU medical management
 - ♠ Describe available tools for assisting physicians in DU medical management

DoD Policies for Depleted Uranium (DU) Medical Management

Why Were Policies Issued?



- ♠ DoD's commitment to ensuring the health concerns of our redeploying personnel are addressed
- ♠ Quantify and document DU exposure
- ♠ Identify DU-exposed service members for referral to VA DU Follow-up Program to determine any long-term implications of DU exposure
- ♠ Historical precedent (Operation Desert Shield/Desert Storm)

DoD Policies for DU Medical Management

What Are the Policies?



- ♠ 30 May 2003, OSD(HA) 03-012, Policy for OIF Depleted Uranium (DU) Medical Management
- ♠ 6 Feb 2004, OSD(HA) 04-004, DoD Deployment Biomonitoring Policy and Approved Bioassays for Depleted Uranium and Lead
- ♠ 9 Apr 2004, OSD(HA) Memorandum, OIF Depleted Uranium Medical Management

OSD(HA) 03-012 Policy for OIF DU Medical Management, 30 May 03

What Is Required?



- ♠ Identification of all OIF service members, DoD civilians, and volunteers accompanying US Forces with potential DU exposure
 - Review of operational events (friendly fire)
 - Post-Deployment Health Assessment (DD Form 2796)
- ♠ Qualitative assessment of level of exposure for service members and government civilians (refer others)
- ♠ DU bioassays for those with potential for significant exposure

Identification and Assessment of Possible DU Exposure



- ♠ **Level I:** Personnel struck by DU munitions/fragments or who were in, on, or within 50 meters of an armored vehicle when it was struck
- ♠ **Level II:** Personnel who routinely enter DU-damaged vehicles or fight fires involving DU munitions as part of their military occupational specialty
- ♠ **Level III:** Personnel with “incidental” (insignificant DU exposures) -- infrequent exposure not expected to result in significant uptake of DU

Urine DU Bioassays



- ♠ Required for Levels I and II exposures; optional for Level III
 - 24-hour urine samples taken within 180 days (ideally) of exposure sent to approved lab IAW with Service guidance
 - Bioassays consist of testing urine, normalized for urine creatinine values, for
 - total uranium
 - presence of DU (isotopic analysis)
 - Submission of Depleted Uranium Questionnaire, and Health Survey (DD Forms 2872 and 2872-1 Test) with urine samples

OSD(HA) 03-012 DU Policy

What Is Required? (Cont)



- ♠ Personnel notified of their results
- ♠ Referral to Baltimore VA Medical Center DU Follow-Up Program offered to those with embedded DU fragments and others with documented significant exposures
- ♠ Use of health risk communication practices throughout the process

OSD(HA) 04-004, DoD Deployment Biomonitoring Policy and Approved Bioassays for Depleted Uranium and Lead,



6♠ Feb 04 Definition of Biomonitoring – the assessment of individual exposures to various substances, especially harmful chemicals, by measuring the parent compound or its metabolites in biological media (e.g., blood, urine, hair, and breath) of exposed personnel

♠ Policy contains:

- Criteria for the approval of bioassays to support deployment operations
- Guidance and procedures for DU bioassay
 - Includes requirement for forwarding any embedded fragments which have been removed for analysis

OSD(HA) Memorandum, OIF DU Medical Management, 9 Apr 04



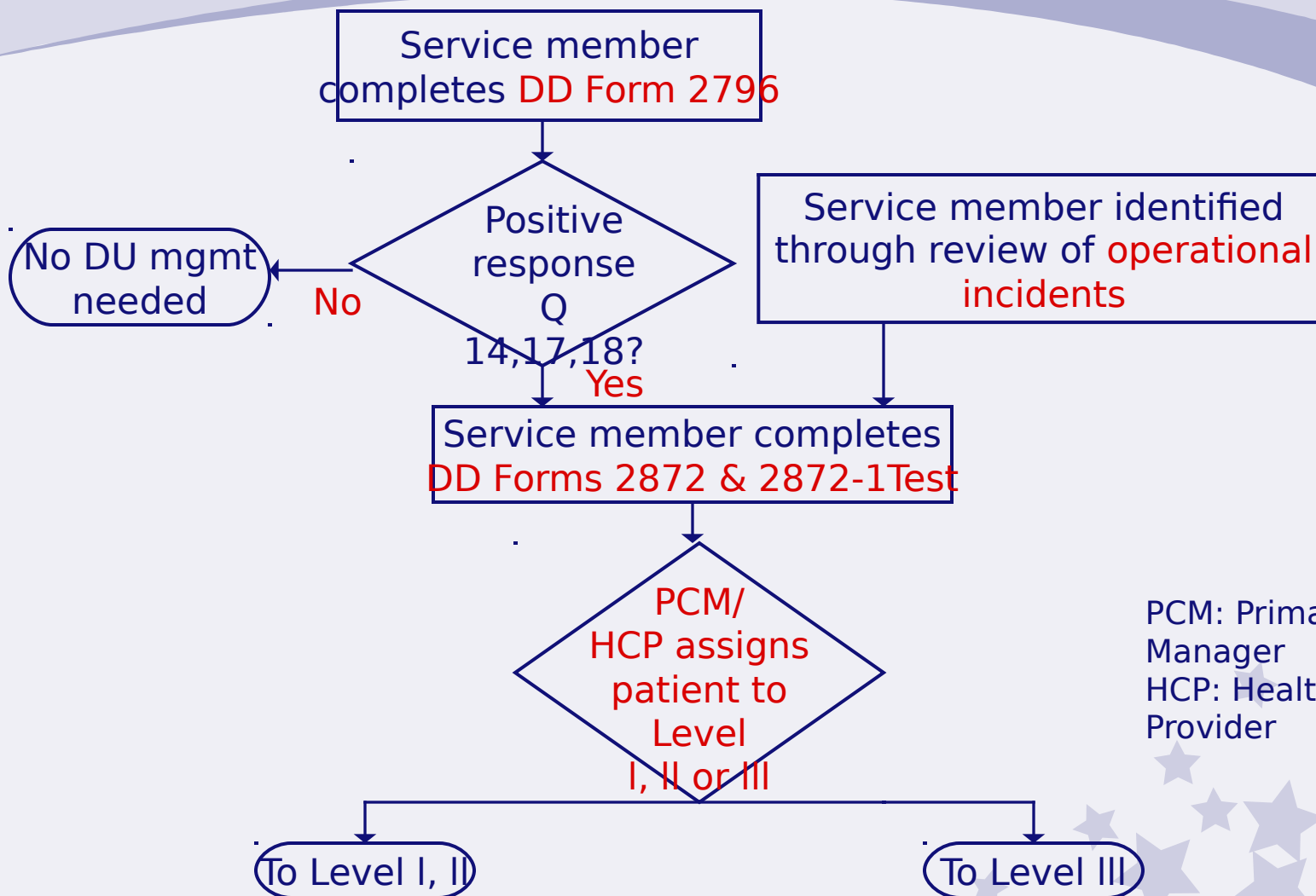
- ♠ Requires Services to submit semi-annual report of DU urine bioassay results, including VA referrals
- ♠ Clarifies OSD(HA) 03-012, Policy for OIF Depleted Uranium (DU) Medical Management, 30 May 03:
 - DU-Exposed Personnel Identification
 - In addition to using DD Form 2796 to identify DU-exposed personnel, advises MTFs to locate units involved in operations or incidents resulting in possible DU exposure
 - DU Exposure Assessment
 - Directs use of DoD DU Questionnaire and Health Survey forms (DD Form 2872 Test and DD Form 2872-1 Test) for evaluation and assigning exposure category (Level I, II, or III)

OSD(HA) Memorandum, OIF DU Medical Management, 9 Apr 04 (Cont)



- DU Bioassay Procedures
 - Test even if it is more than 180 days after exposure
 - Testing laboratories should store 250 ml aliquot of each specimen indefinitely
 - Provides Protocol for DU Urine Validation Testing and Referrals to Baltimore VA Follow-Up Program
 - VA referrals must be coordinated through the DHCC
- DU Exposure Surveillance and Tracking
 - Sufficiently detailed information should be collected regarding exposure incidents to ensure appropriate characterization of service member exposure
- Archiving and DU Case Management
 - Requires Service labs and Baltimore VA to forward all DU exposure assessment and testing results to DHCC to archive

Algorithm for Identifying Potential DU Exposures



PCM: Primary Care Manager
HCP: Health Care Provider

Depleted Uranium (DU) Questionnaire **DD Form 2872 Test**



- ♠ Modification of VA Form 10-9009D
- ♠ 3 Parts
 - Demographic data
 - History and classification of DU exposure
 - Urine uranium results
- ♠ Published as test form Feb 04
- ♠ Currently under revision

DEPLETED URANIUM (DU) QUESTIONNAIRE											
1. MILITARY TREATMENT FACILITY (MTF): _____										MTF UIC: _____	
INSTALLATION NAME: _____											
PRIVACY ACT STATEMENT											
AUTHORITY: Sections 1074f, 3013, 6013, 8013, Title 10, U.S. Code; and E.O. 9397.											
PRINCIPAL PURPOSE(S): To access your state of health after deployment or for any deployment related concern and to assist military health care providers in identifying and providing present and future medical care to you.											
ROUTINE USE(S): To other Federal and State agencies and civilian health care providers as necessary, in order to provide necessary medical care and treatment.											
DISCLOSURE: Voluntary; however, if information is not provided, health care WILL be furnished, but comprehensive care may not be possible.											
PART I											
2. LAST NAME _____											
3. FIRST NAME _____						MIDDLE NAME _____			TYPE _____		
4.a. SOCIAL SECURITY NUMBER _____				b. SERVICE SERIAL NUMBER _____				c. DATE OF BIRTH _____ Month Day Year			
5. ADDRESS (Street name and apartment number, if applicable) _____											
b. CITY OR TOWN _____											
c. COUNTY _____				d. STATE _____		e. ZIP CODE _____		PLUS 4 (Optional) _____		f. COUNTRY STATE _____	
g. TELEPHONE NUMBERS WHERE MEMBER MAY BE CONTACTED Daytime _____ Evening _____								TODAY'S DATE Month Day Year			
8.a. MARITAL STATUS 1 - Married 2 - Divorced 3 - Separated 4 - Widowed 5 - Single, Never Married											
b. SEX F - Female M - Male											
c. CURRENT STATUS 1 - Inpatient 2 - Outpatient 3 - Incarcerated 4 - Active Duty, Inpatient 5 - Active Duty, Outpatient											
d. BRANCH OF SERVICE 1 - Army 2 - Air Force 3 - Navy 4 - Marines 5 - Coast Guard 6 - Other											
7.a. LAST PERIOD OF SERVICE IN PERSIAN GULF AREA PRIOR TO OPERATION IRAQI FREEDOM (August 2, 1990 - March 18, 2003) FROM Day Month Year TO Day Month Year											
b. LAST PERIOD OF SERVICE IN PERSIAN GULF AREA DURING OPERATION IRAQI FREEDOM (March 18, 2003 - Present) FROM Day Month Year TO Day Month Year											
8. LAST PERIOD OF SERVICE IN AREAS OTHER THAN PERSIAN GULF WHEN EXPOSURE TO DU MAY HAVE OCCURRED FROM Day Month Year TO Day Month Year											
DD FORM 2872 TEST, FEB 2004										Page 1 of 7 Pages	
										Reset	

Revision to DU Questionnaire

DD Form 2872 Test



- ♠ DD Form 2872 Test being revised to improve data collection and patient follow-up
- ♠ Additions made to form include:
 - Demographic data section
 - Point of contact who will always know how to reach service member
 - Permanent military status at time of exposure and current military status
 - Permanent unit and attached unit during deployment
 - Email address
 - Headings for types of exposure circumstances
 - Description of possible DU exposure incident section
 - Including other service members involved

Health Survey

DD Form 2872-1 Test



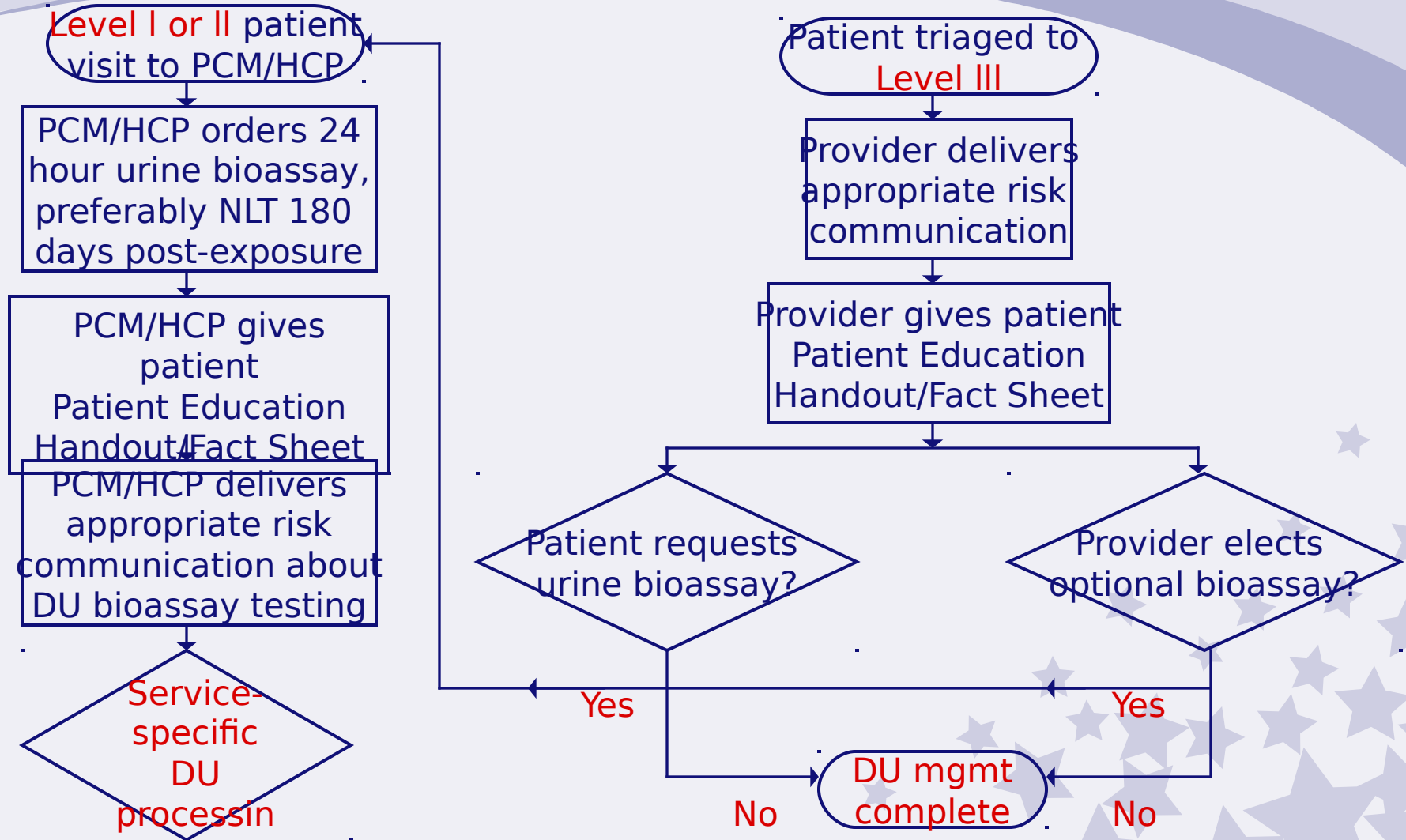
- ♠ Short, generic measure of health-related functioning
- ♠ Consists of 36 questions asking the patient to describe physical or emotional problems over the past four weeks
- ♠ Contents identical to Short Form (SF) 36
- ♠ Published as test form Feb 04

HEALTH SURVEY (Supersedes Short Form (SF) - 36)					
PRIVACY ACT STATEMENT					
<small>AUTHORITY: Sections 1074f, 3013, 6013, 8013, Title 10, U.S. Code; and E.O. 9397. PRINCIPAL PURPOSE(S): To assess your state of health after deployment or for any deployment related concern and to assist military health care providers in identifying and providing present and future medical care to you. ROUTINE USE(S): To other Federal and State agencies and civilian health care providers as necessary, in order to provide necessary medical care and treatment. DISCLOSURE: Voluntary; however, if information is not provided, health care WILL be furnished, but comprehensive care may not be possible.</small>					
NAME (Last, Middle, First)		SSN		DATE	
This survey asks for your views about your health. This information will help you keep track of how you feel and how well you are able to do your usual activities. Answer every question by selecting the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.					
1. In general, would you say your health is: (Fill in the circle that best describes your answer.)					
Excellent <input type="radio"/>	Very Good <input type="radio"/>	Good <input type="radio"/>	Fair <input type="radio"/>	Poor <input type="radio"/>	
2. Compared to one year ago, how would you rate your health in general now?					
Much better now than one year ago <input type="radio"/>	Somewhat better now than one year ago <input type="radio"/>	About the same as one year ago <input type="radio"/>	Somewhat worse now than one year ago <input type="radio"/>	Much worse now than one year ago <input type="radio"/>	
3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much? (Select one circle on each line.)					
			Yes, limited a lot <input type="radio"/>	Yes, limited a little <input type="radio"/>	No, not limited at all <input type="radio"/>
a. Vigorous Activities, such as running, lifting heavy objects, participating in strenuous sports			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Moderate Activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Lifting or carrying groceries			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Climbing several flights of stairs			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Climbing one flight of stairs			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Bending, kneeling, or stooping			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Walking more than a mile			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Walking several hundred yards			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Walking one hundred yards			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Bathing or dressing yourself			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?					
	All of the time <input type="radio"/>	Most of the time <input type="radio"/>	Some of the time <input type="radio"/>	A little of the time <input type="radio"/>	None of the time <input type="radio"/>
a. Cut down on the amount of time you spent on work or other activities					
b. Accomplished less than you would like					
c. Were limited in the kind of work or other activities					
d. Had difficulty performing the work or other activities (for example, it took extra effort)					

DD FORM 2872-1 TEST, FEB 2004

Reset

Process for Ordering DU Bioassay



Laboratory Testing



24-Hour Urine Samples Sent to Service- Designated Lab

- ♠ Army – USACHPPM Lab
- ♠ Air Force – AFIOH Lab
- ♠ Navy/Marines – VA Lab

Urine Creatinine Analysis Performed at Service- Specified Lab

- ♠ Army – Local MTF Lab
(Results sent to USACHPPM with
urine specimen)
- ♠ Air Force – Local MTF Lab
(Results sent to AFIOH with
urine
specimen)
- ♠ Navy/Marines – VA Lab

USACHPPM – US Army Center for Health Promotion and Preventive Medicine

AFIOH – Air Force Institute for Operational Health

VA – Baltimore Veterans Affairs Medical Center

Testing Embedded Fragments



- ♠ HA Policy 04-004 states:
 - “Forward any embedded fragments removed from injured personnel to an appropriate laboratory for analysis of the metal composition.”
- ♠ Testing is useful for verifying the source of DU exposure and identifying other types of fragments that may pose potential health risks or require medical follow-up

Laboratory Analysis for Uranium and Depleted Uranium



Army

USACHPPM
(Uranium level
and isotopic
analysis when
uranium level
is $\geq 268\text{ng/L}$)

AFIP
(Isotopic analysis
when uranium
level is $<268\text{ng/L}$)

Air Force

AFIOH
↓
VA
↓
AFIP
(Uranium level and
isotopic analysis)

Navy/Marines

VA
↓
AFIP
(Uranium level and
isotopic analysis)

DU Bioassay Results



- ♠ Bioassay results and interpretation prepared by
 - USACHPPM - Army
 - Baltimore VA – Air Force, Navy/Marines

DU Bioassay Results (Cont)



- ♠ Results distributed to
 - Ordering provider/lab
 - Notifies patient of results
 - Ensures results are filed in patients' medical record
 - Air Force and Navy/Marine patients receive letter with results from VA
 - Service-specific dosimetry center
 - Deployment Health Clinical Center for central archiving

Service-Specific DU Policies



- ♠ **Army** - OTSG/MEDCOM Policy Memo 05-003, Medical Management of Army Personnel Exposed to Depleted Uranium (DU), 4 Mar 05
- ♠ **Air Force** - SG Policy Letter #03-003, Air Force Medical Service Policy on Operation IRAQI FREEDOM Depleted Uranium (DU) Medical Management, 14 Aug 03
- ♠ **Navy/Marines** - BUMED Instruction 6470.10B, Initial Management of Irradiated or Radioactively Contaminated Personnel, 26 Sep 03

Army DU Medical Management Policy



♠ Original OTSG/MEDCOM Policy Memo 03-007, 13 Jan 04 superseded by Memo 05-003, 4 Mar 05

♠ Major changes:

- Eliminated the requirement to collect urine specimens in Theater for DU bioassay
- Recommended the assignment of a case manager at each MTF to:
 - Act as single POC at the MTF for DU issues
 - Facilitate transmittal of DU bioassay results
 - Coordinate referrals to VA DU Follow-Up Program through the Deployment Health Clinical Center

Service Summary OIF DU Bioassay Results 1 Jun 03 - 31 Mar 05



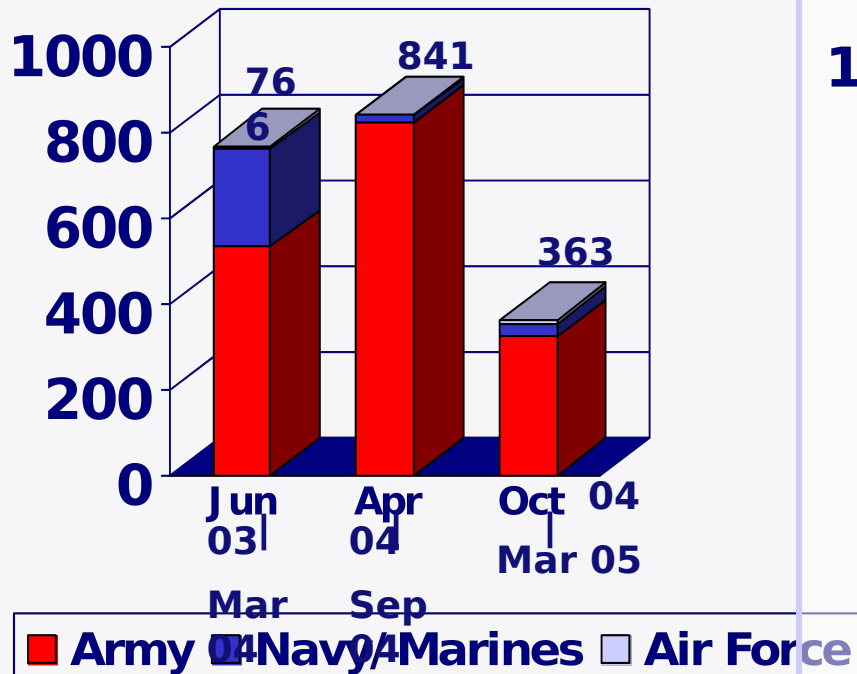
Exposure Category	Army	Navy/ Marine s	Air Force	T O T A L	Elevate d Total Uranium	Detect -able DU	Retained Fragment s
Level I	175	41	2	218	8	6	12
Level II	223	203	7	433	13	0	1
Level III	187	22	7	216	2	0	6
Uncat	1093	10	0	1103	113	1	28
Total	1678	276	16	1970	136	7	47

Semi-Annual DU Bioassay Results

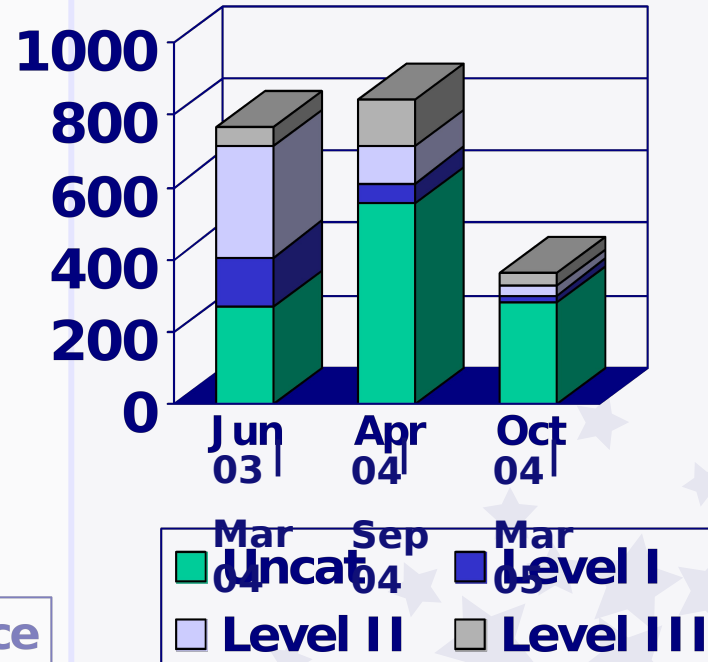
1 Jun 03 - 31 Mar 05



DU Bioassays by Service



DU Bioassays by Exposure Category




Referral to Baltimore VA DU Follow-Up Program



- ♠ All service members with embedded DU fragments and others with positive DU bioassay results will be offered referral to the VA DU Follow-Up Program
 - Biennial comprehensive physical examinations and repeat DU bioassays (2 1/2 days)
- ♠ In accordance with ASD Memorandum 9 April 2004, all referrals must be coordinated through the Deployment Health Clinical Center (DHCC)
- ♠ Primary care manager or health care provider will contact the DHCC to make arrangements with the VA for the referral (Use SF 513, Consultation Sheet)

Learning Objectives

- 
- ♠ Define appropriate DU medical management and review the service-specific DU programs
 - ♠ Discuss Deployment Health Clinical Center's role in DU medical management
 - ♠ Describe available tools for assisting physicians in DU medical management

DHCC's Role in Implementing ASD(HA) DU Policy



- ♠ Provide clinical guidance for implementing DoD DU Policy
 - Clinical consultation
 - Tools and resource material
- ♠ Serve as central archive for all DoD patient information related to DU exposure, testing, and follow-up for active duty and reserve personnel
- ♠ Coordinate referral of DU positive patients to Baltimore VA DU Follow-Up Program

Learning Objectives

- ♠ Define appropriate DU medical management and review the service-specific DU programs
- ♠ Discuss Deployment Health Clinical Center's role in DU medical management
- ♠ Describe available tools for assisting physicians in DU medical management



DHCC Depleted Uranium Page

www.PDHealth.mil



- ♠ Policies and Directives
- ♠ Clinical Guidance
- ♠ Forms and Measures
- ♠ Fact Sheets
- ♠ Other DU-Related Information
- ♠ Education and Training
- ♠ Research
- ♠ Related Links

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POLICIES AND DIRECTIVES

DoD / Joint Forces

- [ASD\(HA\) Memorandum, Operation Iraqi Freedom Depleted Uranium Bioassay Results and Semi-Annual Data Submission, 14 Feb 05](#)
- [ASD\(HA\) Memorandum, Operation Iraqi Freedom Depleted Uranium Bioassay Results and Semi-Annual Data Submission, 10 Sep 04](#)
- [ASD\(HA\) Message 2, Depleted Uranium: Not a Battlefield Health Threat](#)
- [ASD\(HA\) Memorandum, Operation Iraqi Freedom Depleted Uranium Medical Management, 9 Apr 04](#)
- [HA Policy 04-004, Department of Defense Deployment Biomonitoring Policy and Approved Bioassays for Depleted Uranium and Lead, 6 Feb 04](#)
- [HA Policy 03-012, Policy for OIF DU Medical Management, 30 May 03](#)

PDH-CPG Toolbox Reference Card on Depleted Uranium



♠ Six-sided laminated card on DU Medical Management Process Flow includes:

- DoD Process Summary
- Identification, Assessment, and Triage
- Levels I, II, and III
- Lab Results
- Follow-Up



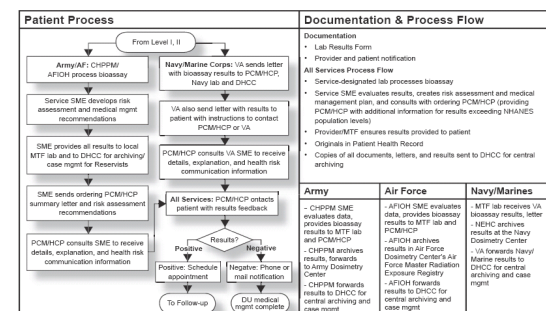
♠ Contained in Post-Deployment Health Clinical Practice Guideline (PDH-CPG) Desk Reference Toolbox distributed to Primary Care Providers in all MTFs Jul 04-May 05

♠ Located on www.PDHealth.mil

Depleted Uranium Exposure Medical Management Process Flow DoD Process Summary

1. **Identification:** Positive responses on DD Form 2796, Questions 14, 17, or 18; or identification with known exposure event or unit. Annotate DD 2796; send to AMSA.
2. **Assessment:** Identified personnel complete DU Exposure Questionnaire. Questionnaire and tracking information sent to PCMHCP.
3. **Triage:** Level III based on results of PCMHCP assessment and medical risk assessment.
4. **Level III:** based on results of PCMHCP assessment and medical risk assessment.
5. **Level II:** based on results of PCMHCP assessment and medical risk assessment.
6. **Lab Results:** PCMHCP sends letter to local MTF lab and to DHCC for archiving/case report for bioassay.
7. **Results:** PCMHCP sends letter to local MTF lab and to DHCC for archiving/case report for bioassay.
8. **Positive:** PCMHCP sends letter to local MTF lab and to DHCC for archiving/case report for bioassay.
9. **Fragment:** PCMHCP sends letter to local MTF lab and to DHCC for archiving/case report for bioassay.
10. **Follow-up:** PCMHCP sends letter to local MTF lab and to DHCC for archiving/case report for bioassay.

Depleted Uranium Exposure Medical Management Process Flow Lab Results




Depleted Uranium Presentation

www.PDHealth.mil




- ♠ Video
- ♠ Script
- ♠ Slides
- ♠ Located on www.PDHealth.mil and in Post-Deployment Health Clinical Practice Guideline (PDH-CPG) Desk Reference Toolbox


DHCC - Microsoft Internet Explorer

**Deployment Health Clinical Training Series**
January 27-29, 2004

Provider Helpline:
1-866-559-1627
www.PDHealth.mil



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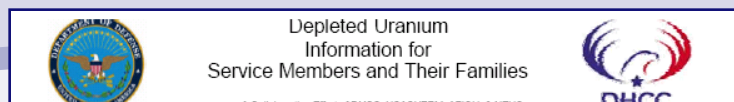
**Operation Iraqi Freedom (OIF)
Management of Depleted Uranium
Exposures**
*R. Craig Postlewaite, DVM, MPH
Senior Analyst, Force Health Protection, DoD FHP&R
Deployment Health Support Directorate*

Dr. R. Craig Postlewaite
[2 - Objectives](#)
[3 - Background](#)
[4 - Military Uses of DU](#)
[5 - DU External Exposures](#)

Recent DU Fact Sheets



♠ Depleted Uranium Information for Service Members and Their Families 17 Sep 04



Revised: September 17, 2004

Depleted Uranium, or DU, is a very heavy metal. It is also used to make armor. DU munitions were currently the most effective metal weapons. It is also used as counterweights used to transport radioactive material from DU. From a medical perspective, DU is not a hazard. Because DU is not a hazard, it is not a concern for people who are exposed to it. Contact with enough DU to cause harm is not likely.

FACTS ABOUT DU

DU is a remaining product of the naturally occurring uranium. Uranium is found in many places. It is found in the ground, in water, and in the air. We breathe it in dust, eat it in food, and drink it in water. It is not a rare or unusual source of natural radiation. Sources of natural radiation include cosmic rays, radon gas, and certain minerals, such as potassium, that are found in the ground. The Agency for Toxic Substances and Hazardous Waste Registry estimates that there is an average of 100 millirem of natural radiation in every square foot of ground.

DU is produced during the process of enriching uranium. The process of enriching uranium produces a waste product called depleted uranium. DU is actually a remaining product from the enrichment process. Because DU has had much of its radioactivity removed, it is weakly radioactive and is 40 percent less radioactive than naturally occurring uranium.

SCIENTIFIC CONCLUSIONS ABOUT RADIATION RISK FROM DEPLETED URANIUM

You may find DOD's perspective on DU in the Department of Defense's Toxic Substances and Hazardous Waste Registry. The Registry has examined DU for many purposes, and its conclusions are shown below.

RAND, 1999. "No evidence is documented of cancer or any other negative health effect received from exposure to natural uranium, even at very high doses." Since DU is 40 percent less radioactive than naturally occurring uranium, the risk of cancer is even lower.

Depleted Uranium Information for Service Members and Their Families



Revised: September 17, 2004

Depleted Uranium is a very heavy metal. It is also used to make armor. DU munitions were currently the most effective metal weapons. It is also used as counterweights used to transport radioactive material from DU. From a medical perspective, DU is not a hazard. Because DU is not a hazard, it is not a concern for people who are exposed to it. Contact with enough DU to cause harm is not likely.

PATIENTS' CONCERN ABOUT RADIATION

While radiation from DU may not be a concern from a scientific or clinical viewpoint, it is likely to be a concern for many patients. It can be particularly concerning because someone exposed to radiation may not know it. Radiation exposure can occur as a result of the exposure. People can smell it, hear it, or taste it.

SCIENTIFIC CONCLUSIONS ABOUT RADIATION RISK FROM DEPLETED URANIUM

DOD assurances about DU may not be helpful to your patients. Others have examined DU, and their conclusions are shown below.

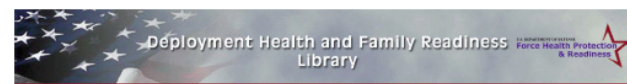
RAND, 1999. "No evidence is documented of cancer or any other negative health effect received from exposure to natural uranium, even at very high doses." As uranium is 40 percent less radioactive than naturally occurring uranium, the risk of cancer is even lower.

Department of Health and Human Services, 1999. "The Department of Health and Human Services has examined DU for many purposes, and its conclusions are shown below." The type has ever been seen as a result of depleted uranium.

United Kingdom Royal Society, May 1999. Estimates of risk are one hundred times less than those for natural uranium. It is 40 percent less radioactive than natural uranium. People are routinely exposed to natural uranium in food, water, and air. The health effects of natural uranium, which has the same chemical properties as DU, are very well understood and are based on 50 years of scientific research.

European Commission, March, 2000. account the pathways and realistic social exposure, radiological exposure to depleted uranium is not likely to cause a detectable effect on human health.

Depleted Uranium Information for Clinicians



U.S. Army Capstone Depleted Uranium Aerosols Study & Human Health Risk Assessment

Information for Servicemembers and their Families

March 10, 2005

Summary:

- The Capstone Depleted Uranium Human Health Risk Assessment determined there would be little or no impact on the health of service members who breathe in DU dust particles while inside tanks or other vehicles hit by DU munitions.
- The Capstone DU Aerosols Study showed that operating vehicle ventilation systems are very effective in reducing DU particle concentrations and, therefore, reducing potential DU exposures to personnel inside the vehicles.
- The Departments of Defense and Veterans Affairs are committed to fully addressing the health concerns of individuals with DU exposures. DoD continues to screen personnel for DU exposure and the VA continues to monitor those with confirmed DU exposures for possible long-term health problems.
- Depleted uranium weapons and armor save U.S. service members' lives by providing more effective weapon systems on the battlefield.

What is depleted uranium? What is different about depleted uranium and natural uranium? How is depleted uranium used?

Depleted uranium is a form of uranium, a naturally occurring, slightly radioactive heavy metal found in many parts of the world. DU is the byproduct of enriching uranium for use in nuclear weapons and nuclear power plants. It is 40 percent less radioactive than natural uranium. People are routinely exposed to natural uranium in food, water, and air. The health effects of natural uranium, which has the same chemical properties as DU, are very well understood and are based on 50 years of scientific research.

The military uses DU in armor-penetrating munitions fired by Abrams tanks, Bradley Fighting Vehicles, and several aircraft systems. Depleted uranium is also used as armor for Abrams tanks. Commercial uses of DU include aircraft

and sailing ship counterweights and radiation shielding of industrial and medical radiation sources.

How might service members be exposed to DU?

Service members might be exposed to DU when they occupy vehicles hit by DU munitions, rescue operations from those vehicles, or perform other operational duties involving these vehicles (equipment removal, repair, salvage, etc.). Exposures can occur when someone is wounded and retains fragments that contain DU in his or her body, or breathes air containing DU dust, or transfers DU dust from contaminated surfaces to the mouth or to open wounds. DU must be taken into the body to be a potential health hazard.

What was the Capstone DU Project and why was it done?

The Capstone DU Project was composed of both the Capstone DU Aerosols Study and the Capstone DU Human Health Risk Assessment. The Capstone DU Project was sponsored by the U.S. Army (Heavy Metals Office and USACHPPM) and the DoD Deployment Health Support Directorate. Its purpose was to provide a peer-reviewed, rigorous scientific estimate of any health risks associated with breathing DU particles. The study focused on service members who may have been in or around armored vehicles when hit by large-caliber DU munitions. While the health hazards of DU are well understood, the military recognized that more information was needed about the DU aerosols inside armored vehicles to predict possible health risks from aerosol exposure.

♠ Depleted Uranium Information for Clinicians 17 Sep 04

♠ US Army Capstone Depleted Uranium Aerosols Study & Human Health Risk Assessment For Service Members and Their Families 10 Mar 05



Visit the Deployment Health and Family Readiness Library: <http://deploymenthealthlibrary/the.odm.mil>
A collaborative effort between the Air Force Institute for Operational Health, the Deployment Health Clinical Center, the Deployment Health Support Directorate, the Navy Environmental Health Center, the U.S. Army Center for Health Promotion and Preventive Medicine, and the USACHPPM/Army Family and Community Policy

Available on www.PDHealth.mil

Questions, Information, Assistance



DoD Deployment Health Clinical Center
Walter Reed Army Medical Center
Building 2, Room 3G04
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